A TRANSPORTATION SYSTEM FOR THE EMBARCADERO AREA

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A TRANSPORTATION SYSTEM FOR THE EMBARCADERO AREA

Including:

Alternatives to the extension of Interstate Route 280 along the San Francisco Waterfront

A plan for demolition of the Embarcadero Freeway

Prepared by the San Francisco Department of City Planning

In consultation with:

San Francisco Department of Public Works
California Department of Transportation
Metropolitan Transportation Commission
San Francisco Municipal Railway
United States Department of Transportation

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A Transportation system
for the Embarcadero
[1974]

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I. INTRODUCTION

This report summarizes a study undertaken by the Department of City Planning, in consultation with the Department of Public Works, the Municipal Railway, the California Department of Transportation, the Metropolitan Transportation Commission and the United States Department of Transportation, in accordance with Resolution No. 828-73 adopted December 10, 1973, by the San Francisco Board of Supervisors. The resolution calls for demolition of the Embarcadero Freeway and opposes extension of Interstate 280 along the waterfront, and it calls upon the Department of City Planning to undertake a short-term study of alternatives to both the Embarcadero Freeway and the I-280 extension, comprising non-freeway alternatives, financial considerations, and a physical and financial plan for demolition of the Embarcadero Freeway (see Appendix A for complete text of Resolution).

Representatives of the aforementioned agencies constituted a study "review group" which met periodically to review technical developments and determine policy. Primary technical work responsibilities were assumed by the Department of Public Works and the California Department of Transportation; the representatives of the Metropolitan Transportation Commission and U. S. Department of Transportation (Federal Highway Administration) assumed responsibilities to review the plans as they developed and indicate the policy areas with which their agencies were concerned. The cooperation and involvement of these agencies made possible a thorough evaluation of diverse and complex issues within a nine-month period and has resulted in a set of recommendations for a multi-modal transportation system in the Embarcadero area of San Francisco.

STUDY BACKGROUND

Some of the events of the year 1973, preceding adoption of Resolution 828-73, are relevant to understanding the circumstances under which the resolution was adopted, and thereby, the context in which this study was undertaken.

In February 1973, the Board of Supervisors declined to participate in another study of the Golden Gate Freeway (between The Embarcadero and the Golden Gate Bridge) after a hearing revealed that the public considered the proposed study to be too similar to the rejected Golden Gate Freeway proposal of 1966.

In June 1973, Senator Alan Cranston announced that the Federal Highway Administration had provided information to him to the effect that 1) the federal money used in building the elevated Embarcadero Freeway need not be paid back to the federal government if the structure is ever razed, 2) federal highway trust funds could be used to rebuild the freeway as a surface, sub-surface or underground structure, and 3) federal funds could not be used to tear down the structure unless it was part of an effort to build a new federal highway in the same location.

In September 1973, Norbert T. Tiemann, Federal Highway Administrator, announced that "the Federal Highway Administration (FHWA) can fund tearing down the Embarcadero if this is a local decision and provided that the teardown operation is necessary for building a sound transportation system, not necessarily a freeway."

From August to November 1973, the San Francisco Waterfront Advisory Committee to the Bay Conservation and Development Commission confronted the issues of the existing elevated Embarcadero Freeway and the planned waterfront route of Interstate 280 from Third Street to the Bay Bridge and the Embarcadero Freeway. The Committee learned from the district director of the California Department of Transportation that the State was willing to take part in any steps to remove the Embarcadero Freeway if the traffic service it provides to the Northern Waterfront area were replaced with alternative, not necessarily freeway, facility(ies). The Committee adopted a resolution, finding that "the existence of the Embarcadero Freeway and the possible extension of Route 280 to the Bay Bridge will interfere substantially with public access, aesthetics and other factors of waterfront planning and use."

STUDY DESIGN

The transportation system described in this report is to serve an area with a critical and delicate urban ecology--the interface of downtown San Francisco with its waterfront and with the Bay Area. It is an area of diverse transportation needs; it is a controversial area. The proposed system is composed of several elements in order to meet these diverse needs.

The system has two major components: 1) the connection between Interstate 280 and the San Francisco-Oakland Bay Bridge (Interstate 80), and 2) a plan for the demolition of the existing elevated Embarcadero Freeway. This report deals with the complexities of each of the major components separately. The other system elements are described in connection with either of these two major components.

The system has been designed so that many of the elements can stand independently and can be developed separately over time, if need be. Thus, delayed decisions on one system element need not jeopardize others.

The Embarcadero Area transportation system as proposed is designed to be part of the overall regional system of transportation in accordance with the Regional Transportation Plan as adopted by the Metropolitan Transportation Commission.

SUMMARY OF RECOMMENDATIONS

A. Connect I-280 to the Bay Bridge with a non-waterfront route. Two alternative connections, one generally along a Sixth Street alignment and the other generally along a Colin P. Kelly, Jr. Street alignment, have particular merit.

B. Ramp I-280 to grade (at Second/King Streets) from the existing stub-end at Third Street, connecting to the surface Embarcadero.

C. Provide for a future exclusive bus connection from I-280 to a new regional bus terminal at the site of Transbay Terminal.

D. Establish shuttle transit from the Southern Pacific commuter railroad station and peripheral parking in the vicinity of the I-280 ramp to downtown and the financial district.

E. Establish an Embarcadero transit route linking regional transit terminals (Southern Pacific-Ferry Building-BART), parking, the financial district, the Northern Waterfront and waterfront recreation.

F. Demolish the existing elevated Embarcadero Freeway from Beale Street to Broadway, including the elevated Broadway and Clay/Washington ramps, and ramp down the Embarcadero exit from the Bay Bridge to grade near Howard Street.

G. Reconstruct and landscape the surface Embarcadero to provide:

1. A basic four-lane roadway with auxiliary lanes in appropriate places
2. Sidewalks
3. Exclusive bicycle path
4. Preserved right-of-way for Belt Line and future transit
5. Working (loading) aprons for maritime piers
6. A subsurface section under Market Street to provide through pedestrian access to the Ferry Building and greater continuity and usefulness of Justin Herman Plaza and park.

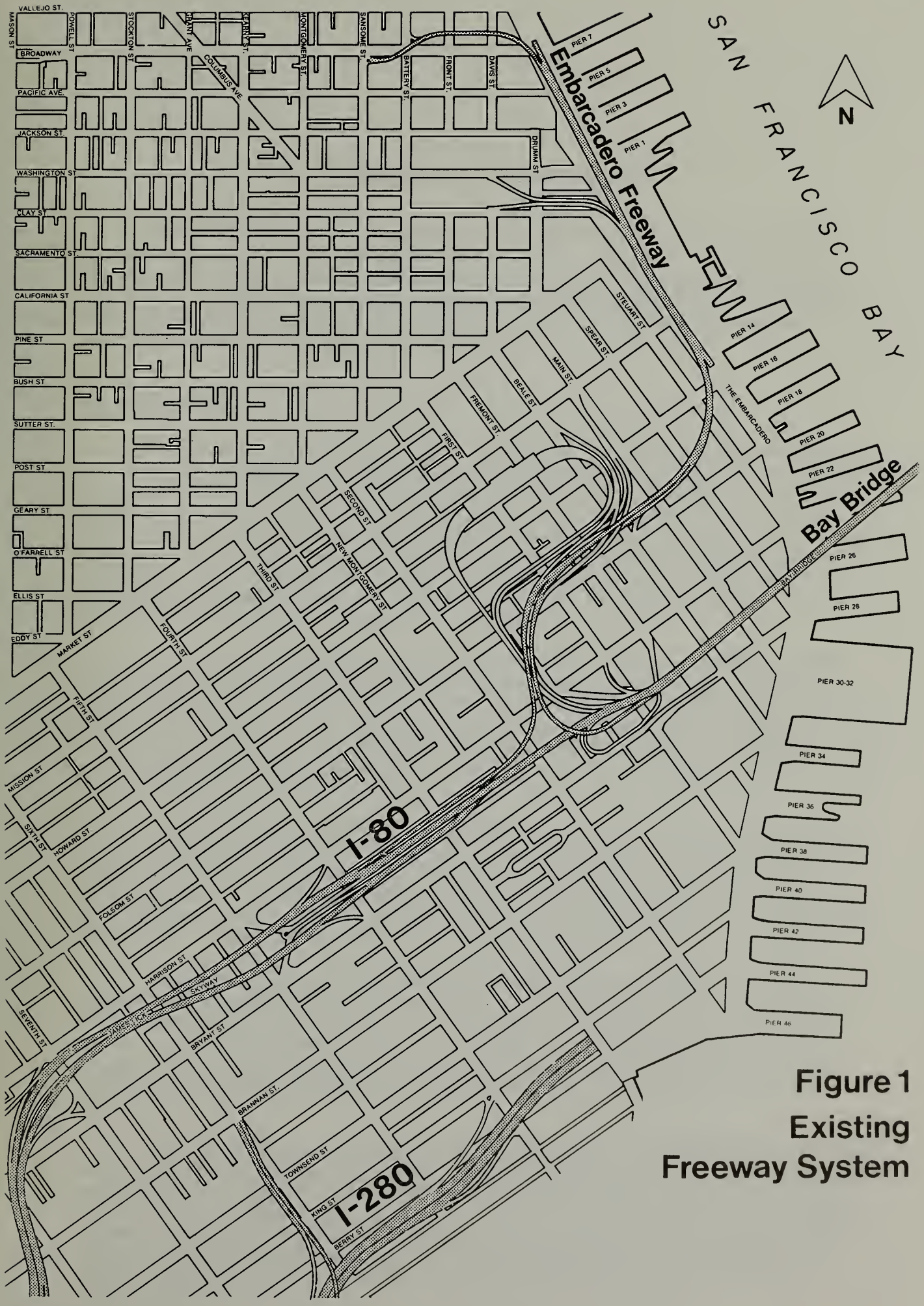

Figure 1
Existing Freeway System

II. INTERSTATE 280 (Southern Freeway)

The Southern Freeway (including the Southern Embarcadero Freeway extension between Evans Avenue and the existing elevated Embarcadero Freeway near Howard Street) was included in the Trafficways Plan of 1951. The Board of Supervisors' 1959 resolution declaring opposition to most of the freeways then planned for San Francisco specifically exempted the Southern Freeway from that opposition.

WATERFRONT ROUTE

The Southern Embarcadero Freeway extension was first recommended to the California Highway Commission by the State Highway Engineer and endorsed by the San Francisco Board of Supervisors in 1961. However, it did not become part of the Interstate system until 1965 when the Federal Highway Administrator withdrew Interstate status designation I-280 from the rejected north-south route between the Junipero Serra Freeway and the Park Presidio approach to the Golden Gate Bridge, and transferred it, at the request of the Board of Supervisors, to the then completed Southern Freeway and to the Southern Embarcadero Freeway extension.

In 1966 the adopted route was modified in order to remove the proposed double deck elevated Southern Embarcadero structure from the waterfront between Howard Street and Main/Brannan Streets. Instead, the freeway was to be routed up Main Street to connect to the Embarcadero Freeway. A freeway agreement for the revised alignment between Third and Howard Streets (the "waterfront" route discussed in this report) was executed by the State and the City in November 1966.

In October 1969 the City requested the State Division of Highways to stop work on the elevated freeway connection between the Southern Embarcadero Extension and the existing elevated Embarcadero Freeway because of concern that the connection would perpetuate the existence of the Embarcadero Freeway, contrary to the City policy that it be removed. No objection was raised to continuing work on the I-280 connection to the Bay Bridge.

Until the time of the BCDC Waterfront Advisory Committee's 1973 resolution opposing the waterfront route, the State continued design work on the connection of I-280 to the Bay Bridge, but revised proposed structural plans to allow the option of building or not building the connection to the Embarcadero Freeway. In 1973 construction of the portion of the Southern Embarcadero extension between Sixth Street and Third Street was completed.

Without the imperative of connecting I-280 to the Embarcadero Freeway, the waterfront alignment to the Bay Bridge loses much of its rationale, not only from the viewpoint of waterfront planning and use, but from the viewpoint of the transportation system as well. Since the Embarcadero Freeway approach to the Bridge to which I-280 would be connected is already operating at capacity during much of the high demand period, the addition of I-280 traffic would overburden the operation of this segment of the Bay Bridge approach.

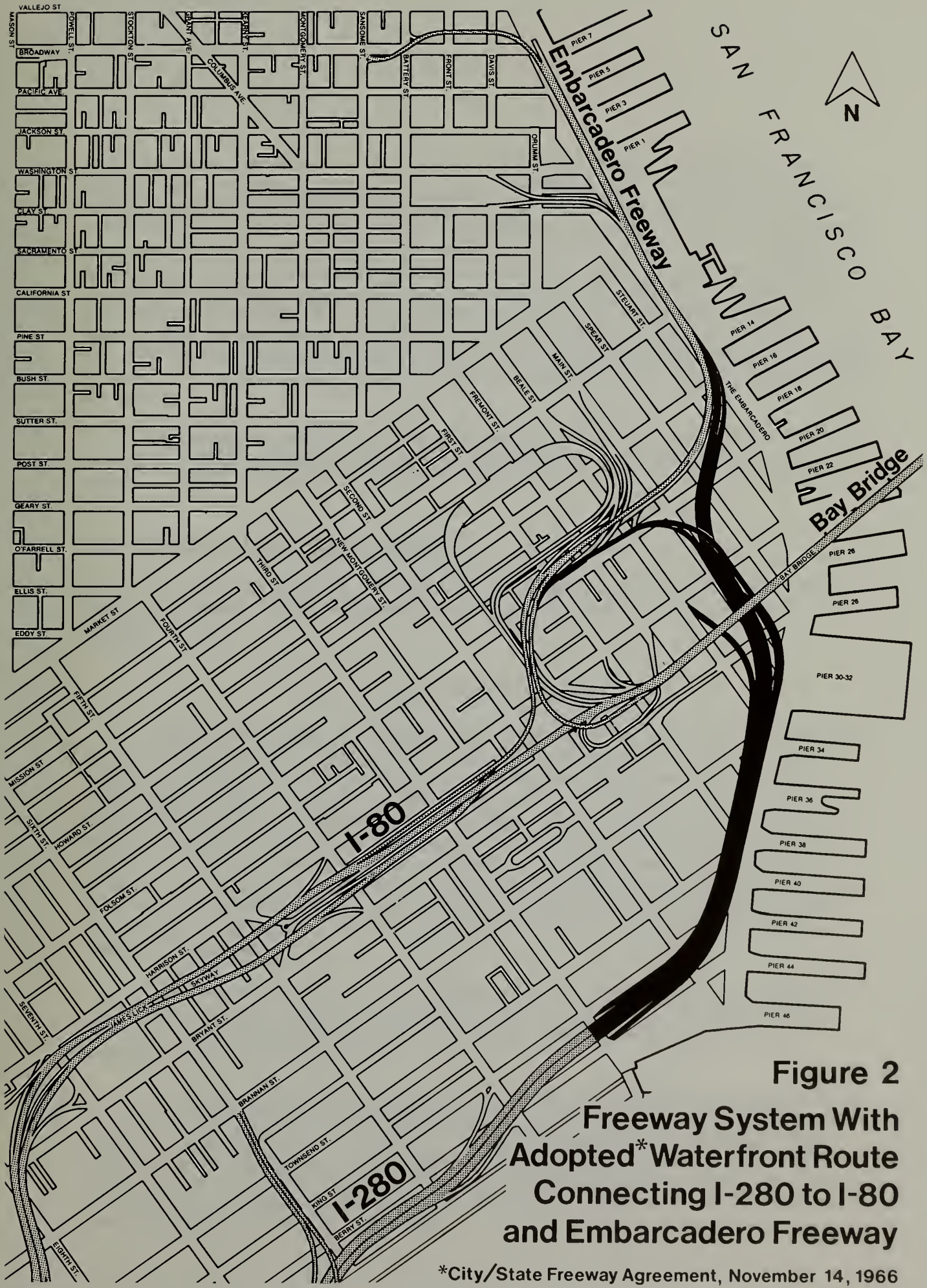

Figure 2

Freeway System With Adopted* Waterfront Route Connecting I-280 to I-80 and Embarcadero Freeway

*City/State Freeway Agreement, November 14, 1966

It is not the most direct route for a connection between I-280 and the Bridge, and it is an expensive solution. Cost of the I-280/I-80 portion of the waterfront route is estimated by the California Department of Transportation to be $37.3 million in 1974 dollars, including $35.8 million for construction and $1.5 million in unacquired right-of-way costs. Approximately $8 million previously has been spent for right-of-way for this route; the amount of money which could be recovered by abandonment of this route has not been determined. In addition, the connection to the elevated Embarcadero is estimated in 1974 to cost $9.9 million for construction and $.1 million for remaining unacquired ($1 million previously acquired) right-of-way. The total amount committed to the waterfront route is, then, $56.3 million.

Alternative routes for the connection to the Bay Bridge can be more direct and less expensive and can be designed in a manner which would improve the flow of bridge traffic.

ALTERNATIVES TO THE WATERFRONT ROUTE

Several alternative connections were examined. In addition, the study also examined the alternative of not connecting I-280 to the Bay Bridge at all.

THE NO CONNECTION ALTERNATIVE

There are certain transportation objectives which could be realized and traffic problems which could be ameliorated by making a connection; these are described in this report. The choice of the no connection alternative, then, would be based in large part on factors other than its relationship to the transportation system. Such factors include cost, number of businesses and dwellings to be relocated, environmental impact, effect on commerce and industry and effect on employment. A thorough analysis of these factors was beyond the scope of this study. Such analysis must be undertaken, however, before reaching a final decision on any alternative connection, perhaps, as part of normal environmental impact review procedures.

The costs of both the alternative routes described below, although less than for the committed waterfront route, are still sizeable. The City, the State and the Federal governments must determine whether the benefits justify the costs.

If it were to be decided not to provide a connection for automobile traffic between I-280 and the Bay Bridge, it would still be possible physically to implement other elements of the transportation system, notably ramps to grade from the current stub-end of I-280 at Third Street and/or an exclusive bus ramp connection to the Transbay Terminal site, also from the current stub-end of I-280. (See Table I in Section IV of this report for the costs of these elements.)

THE CONNECTION ALTERNATIVES

Completion of Interstate 280 to the Bay Bridge could allow for a functional specialization in the Embarcadero area transportation system, wherein I-280 can be assigned the major role in carrying intra-regional traffic, to and from the East Bay, to and from the Peninsula and between the East Bay and the Peninsula, while the James Lick Freeway (I-80/101) can become more particularly a downtown San Francisco distributor.

Two alternative connections to the Bay Bridge, one generally along a Sixth Street alignment and the other generally along a Colin P. Kelly, Jr., Street alignment, appear to have particular merit in meeting the transportation objectives in this corridor while alleviating existing traffic problems. There are other potential connections (a Second Street alternative was studied but discarded when it became apparent that it did not have advantages over the nearby Colin P. Kelly Jr. Street route), but these two appear preferable.

The following section describes (1) the two alternatives; (2) the existing traffic problems in the corridor; and (3) the effects the alternatives are expected to have in alleviating traffic problems and meeting transportation objectives.

Sixth Street Alternative

Sixth Street is a logical route for a connection because of the existing Sixth Street entrance/exit ramp, which extends two blocks northward (toward I-80) from I-280. The Sixth Street alternative would involve a connection from that ramp north along Sixth Street and then east along the north side of Bryant Street to I-80. This connection would include the following design features:

1. Northeast-bound traffic on I-280 headed for the Bay Bridge would exit at the Sixth Street ramps, where traffic would be split with two lanes assigned to the I-80 connection and one lane remaining as an exit to Sixth and Brannan Streets.

2. To accommodate the traffic from I-280, one northeast-bound lane would be added to the outside edge of I-80 between Seventh and Fifth Streets.

3. The Fourth Street off-ramp from I-80 would be revised to make room for the added outside lane.

4. Northeast-bound traffic on I-80 would be split near Fourth Street with two lanes assigned to Embarcadero-bound traffic and three lanes assigned to the Bay Bridge.

5. Southwest-bound traffic from the Bay Bridge headed for I-280 would be assigned two lanes and would merge with one lane of traffic from Sixth and Brannan Streets.

6. The existing Fifth Street northbound on-ramp would be revised to connect only to The Embarcadero.

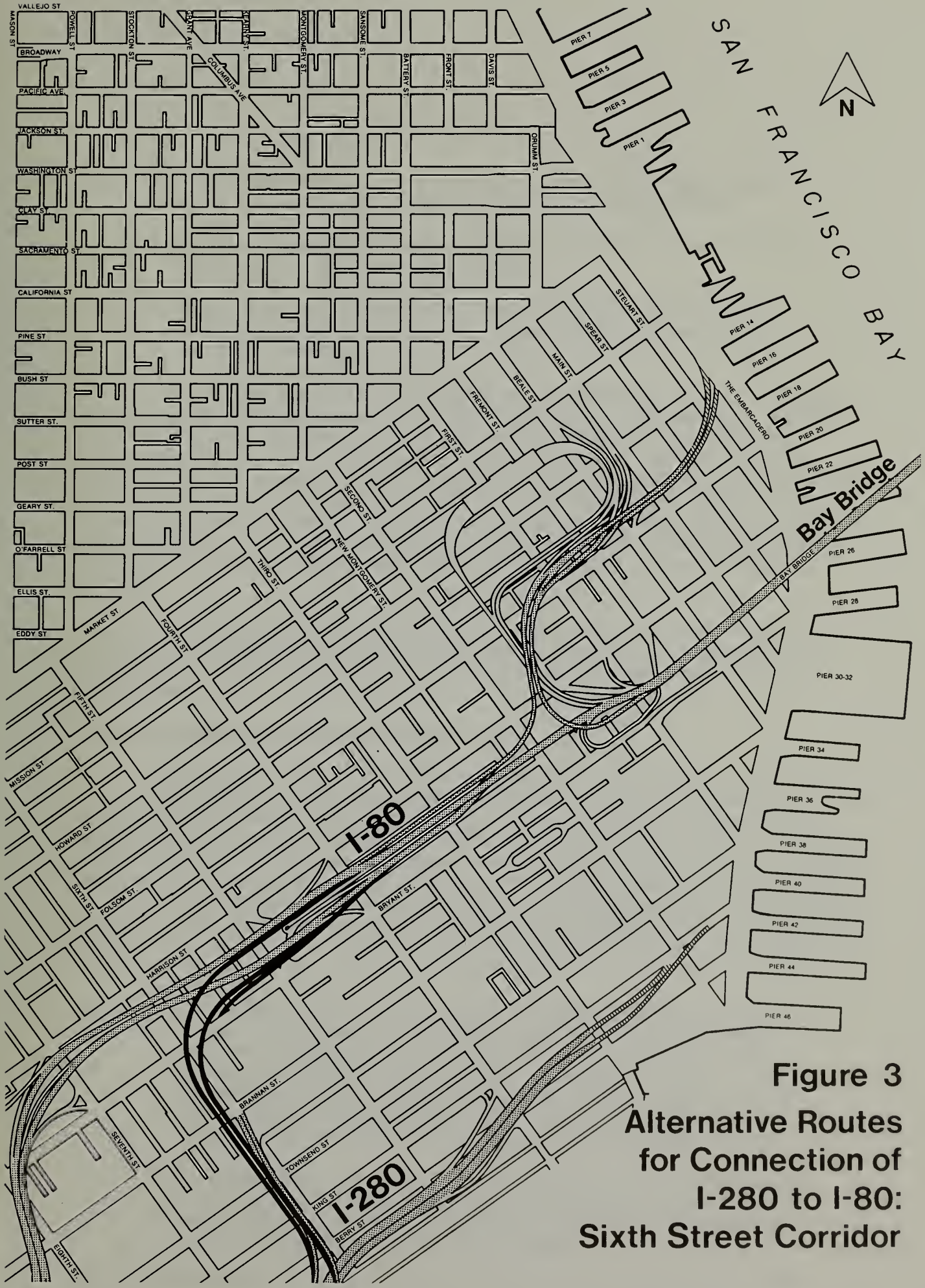

Figure 3
Alternative Routes for Connection of I-280 to I-80: Sixth Street Corridor

7. A new northbound on-ramp would be added from Bryant Street near Morris Street connecting only to the Bay Bridge.

8. Increased merging distance would be provided between southbound Embarcadero and I-80 traffic.

9. Ramps from the current stub-end of I-280 at Third Street would be brought to grade at Second Street between King and Berry Streets.

Cost of the Sixth Street alternative is estimated by the California Department of Transportation to be $27.4 million in 1974 dollars, including $20.9 million for construction and $6.5 million for right-of-way. (Approximately $2.3 million already has been expended for right-of-way which would be utilized in this alternative for the ramps to grade at Second Street; the amount of money which could be recovered by not building this alternative has not been determined.) Construction costs reflect several improvements to I-80 which the State has intended to make in any case within the existing right-of-way under a previously planned $12 million program.

The right-of-way required for this alternative may involve relocation of 53 businesses and 10 dwelling units. Analysis of the nature of businesses, number of employees, and environmental impact has not been made as yet.

Colin P. Kelly, Jr., Street Alternative

The Colin P. Kelly, Jr., Street alignment is a logical route for system completion because it follows the boundary between the more developed portions of the South of Market area to the west and the predominantly vacant blocks to the east. The Colin P. Kelly route is the route farthest inland from the waterfront which involves the least dislocation of existing San Francisco businesses and industries. It is also the route which comes closest to the Transbay Terminal, therefore requiring the shortest exclusive bus link should such a link be made, as discussed later in this report. The Colin P. Kelly, Jr., Street connection would involve the following design features:

1. Two lanes northbound from I-280 would be gradually merged to one lane to meet the existing one lane fly-over ramp from The Embarcadero just short of its connection to I-80. Two of the traffic lanes at the Bay Bridge entrance would be assigned to the combined 280/Embarcadero traffic and two lanes assigned to 101/80 traffic. The fifth Bridge lane would remain assigned to the First Street on-ramp traffic.

2. A northbound on-ramp would be added to I-280 at Third Street to serve traffic from the South of Market and the waterfront and to attract traffic diverted from I-80 by the reduction of I-80 lanes entering the Bay Bridge.

3. Two lanes would exit from the Bay Bridge southbound to I-280.

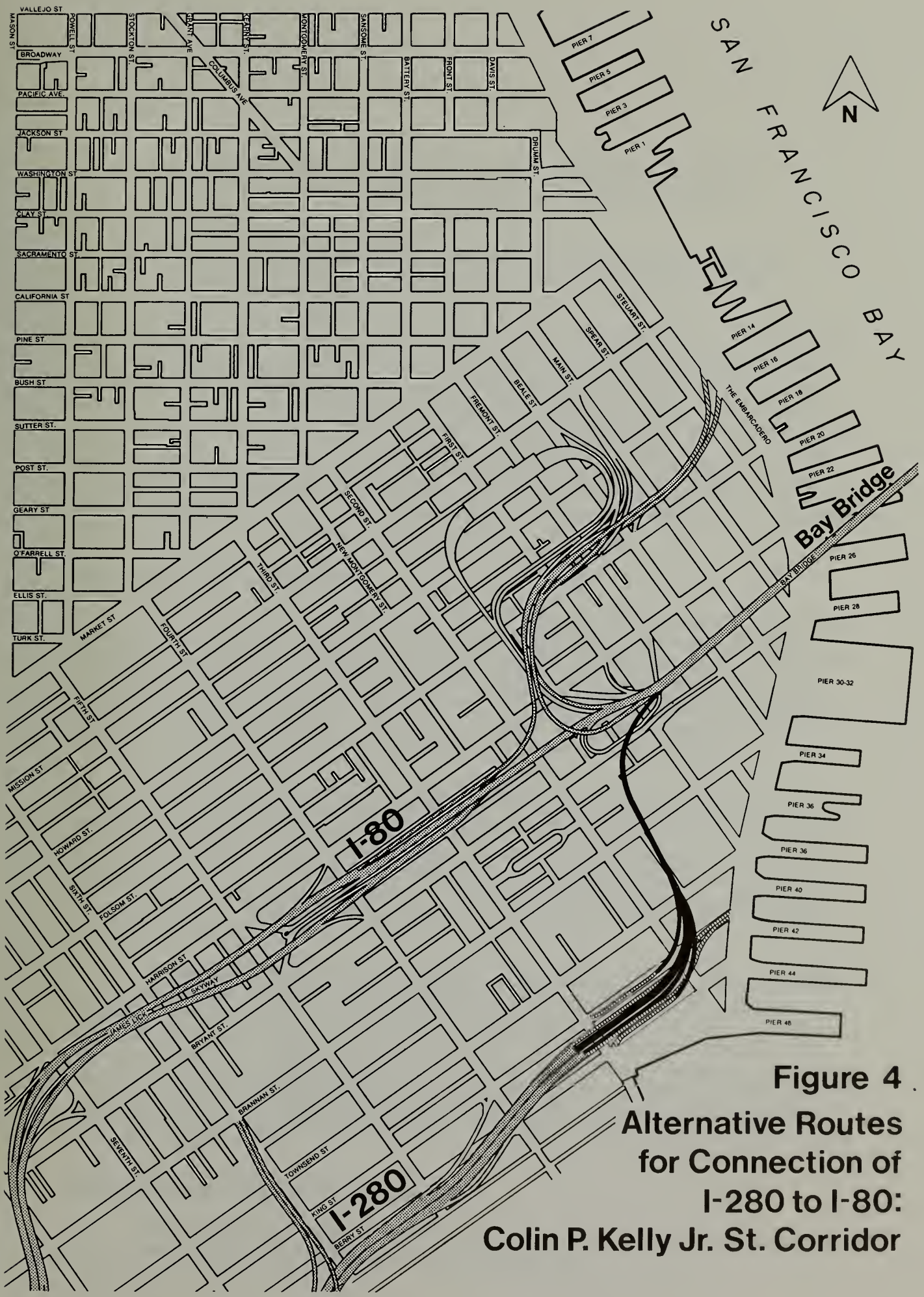

Figure 4
Alternative Routes for Connection of I-280 to I-80: Colin P. Kelly Jr. St. Corridor

4. A Third Street off-ramp would also be added to I-280 to serve downtown, South of Market and waterfront-bound traffic exiting the Bay Bridge.

5. Ramps from the current stub-end of I-280 at Third Street would be brought to grade at Second Street between King and Berry Streets.

Cost of the Colin P. Kelly, Jr., Street alternative is estimated by the California Department of Transportation to be $21.8 million in 1974 dollars, including $16.0 million for construction and $5.8 million for right-of-way. (Approximately $2.3 million already has been expended for right-of-way which would be utilized in this alternative; no estimate has been made of the amount of money which could be recovered by not building this alternative.) The right-of-way required for this alternative may involve relocation of 25 businesses; no dwelling units are in the right-of-way. Analysis of the nature of businesses, number of employees and environmental impact has not been made as yet.

Existing Traffic Conditions

During the morning peak period, in the northbound traffic direction, there is a major bottleneck on Route 101 (James Lick Freeway) between the 280/101 Interchange at Alemany and the Seventh Street off-ramp. (There is also a bottleneck on I-280 between the 280/101 Interchange and the Army Street off-ramp, but it is of a shorter period.) Also during the morning peak, some through traffic is now using City streets between the Sixth Street off-ramp from I-280 and the on-ramps to the Bay Bridge.

In the more congested evening peak period in the northeastbound direction, the Bridge is the bottleneck, forcing backup on I-80 sometimes as far back as the Central Freeway, so that traffic bound for the Seventh Street off-ramp, Fourth Street off-ramp and The Embarcadero is caught in the backup. There is backup on the City streets leading to on-ramps at First Street, Beale and Sterling Streets, and some through traffic from the I-280 Sixth Street off-ramp uses city streets on its way to the Bay Bridge on-ramps.

In the southbound direction during the evening peak period, there is a bottleneck on Route 101 between the interchange with the Central Freeway and I-80 and the interchange with I-280; there is also a bottleneck of shorter duration on I-280 between the Army Street on-ramp and the interchange. Some through traffic uses city streets between the Fifth Street off-ramp from I-80 and the Bridge to get to the Sixth Street on-ramp to I-280. The Sixth and Brannan Streets intersection is congested because of the heavy on-ramp traffic from Sixth Street and left turns from Brannan Street.

Effects of the Connection Alternatives

The following effects should be realized under either the Sixth Street or Colin P. Kelly Jr. Street alternatives:

1. There will be no new freeway on the waterfront.

2. The shifting of traffic and eventual balance between 101/80 and I-280 for through trips will mean:

   a. less delay (in p.m. and a.m.) for San Francisco downtown-bound traffic using the James Lick (101/80) and The Embarcadero

   b. less delay (in p.m.) for southbound traffic originating locally

   c. less delay (in a.m.) for Bay Bridge traffic exiting locally

3. Bay Bridge-280 through traffic will be removed from city streets.

4. There will be flexibility in case of incidents on the Bay Bridge or either freeway, with less interference on city streets.

5. Additional regional access will be provided to and from the India Basin Industrial Redevelopment Area, the waterfront and its major maritime piers, and Hunters Point Shipyard.

6. There will be additional access to and from the waterfront, enhancing its development potential.

7. There will be safety improvements (less accidents) realized to the extent that traffic shifts to the newer (safer) I-280 and from city streets to the freeways.

Since the Colin P. Kelly Jr. Street alternative provides for merging northeastbound I-280 traffic with northeastbound I-80 traffic closer to the Bridge than does the Sixth Street alternative, the reduction in delay for 101/80/Embarcadero traffic destined for downtown San Francisco would be greater under the Colin P. Kelly Jr. Street alternative. On the other hand, the Sixth Street alternative has greater flexibility to accommodate varying traffic demand, because it would carry the combined traffic of the two routes together for a greater distance, allowing for shifts in demand on either route or between them.

The Colin P. Kelly Jr. Street route would require displacement of fewer private properties and businesses. However, either of the two alternatives appears to be preferable to the contracted waterfront route.

OTHER SYSTEM COMPONENTS RELATED TO 280

As previously described, ramps from the current stub-end of I-280 at Third Street would be brought to grade under either the Sixth Street or Colin P. Kelly Jr. Street alternatives. It is possible to consider these ramps as a separate element which could be built whether or not a connection between I-280 and I-80 is made. This is because these ramps are intended to connect to three other system elements:

1. the four-lane Embarcadero surface roadway, described in Section III of this report

2. the South of Market "preferential parking belt" which would linked to:

   a. an Embarcadero transit system, described in Section III

   b. shuttle bus transit directly into downtown, described at the end of this section.

A diagram of these ramps appears at the end of Section II.

Altogether, three different transit elements are proposed for the transportation system; two of these are discussed below in relationship to I-280.

One of the transit elements (the Transbay Terminal Bus Connection) is aimed at encouraging a shift in intra-regional travel patterns in the Peninsula (I-280) corridor from automobiles to transit; the other (the bus shuttle transit) is designed to discourage use of the private automobile in the downtown core and northern waterfront.

TRANSBAY TERMINAL BUS CONNECTION

Under legislation recently passed by the California Legislature a new Bay Area Transportation Terminal Authority will be created to construct and operate a regional bus terminal, probably on the site of the existing Transbay Terminal. Provision of exclusive bus connections from the Peninsula to the bus terminal was stressed in the studies leading to the new legislation. Because over half of the current person trips in and out of the City of San Francisco are along the south Peninsula corridor, more than 700,000 person trips are expected in the corridor by 1995. Even if BART were to be extended to San Mateo, more than one transit mode will be required to meet this demand. If I-280 is to become the regional connector freeway, it follows that I-280 be assigned the regional transit route.

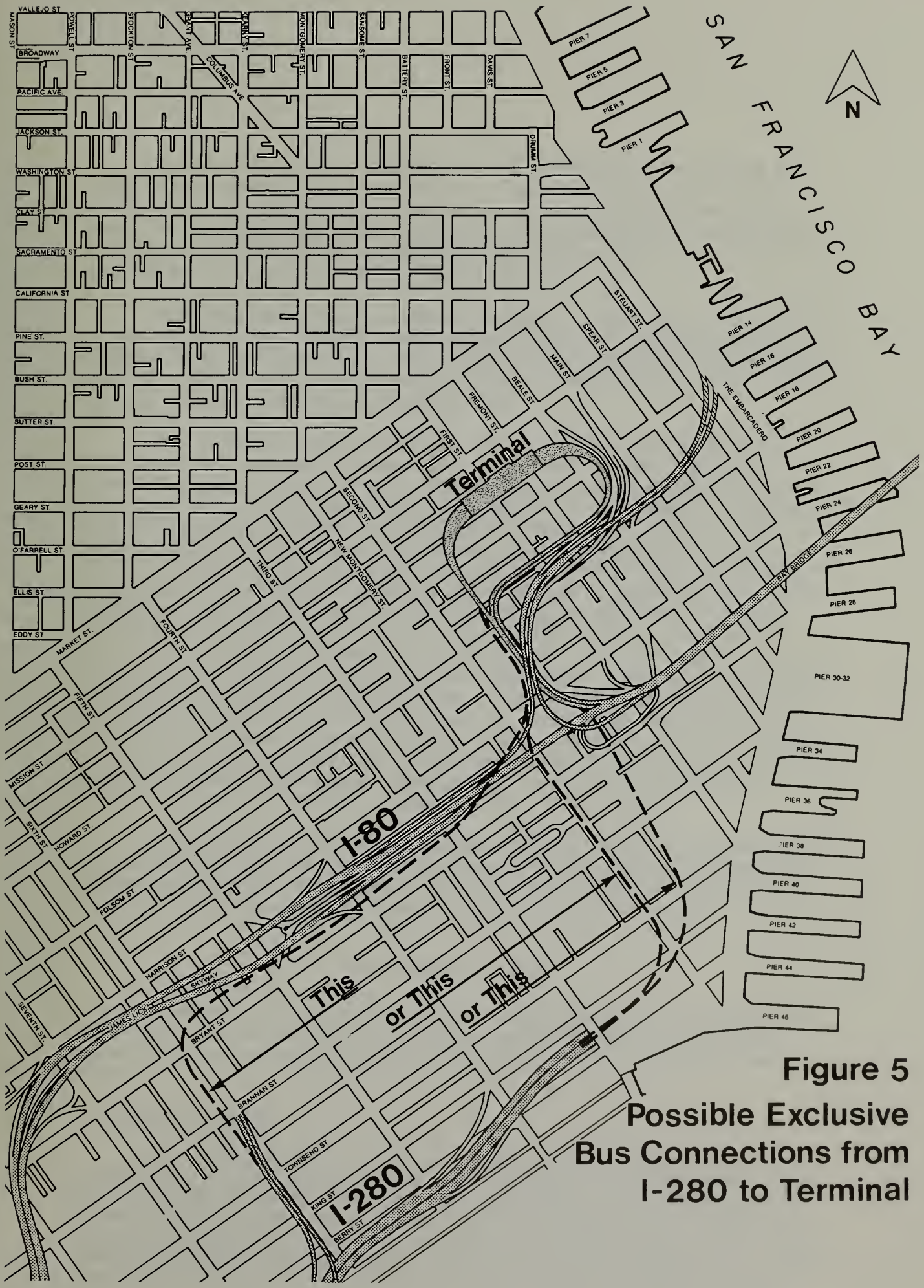

Figure 5
Possible Exclusive Bus Connections from I-280 to Terminal

In this study, four alternative bus connections from I-280 to the Transbay Terminal were analyzed: 1) an exclusive elevated Colin P. Kelly Jr. bus route, 2) an exclusive elevated Second Street bus route, 3) exclusive bus lanes through the combined 280/80 traffic from Sixth Street to Second Street (Sixth Street Alternative), and 4) exclusive bus lanes on the surface Second Street.

All four routes are considered feasible. All four would connect to the existing bus terminal ramp system, which the terminal studies indicate should be retained. The choice of bus connection would depend somewhat on the choice of automobile route alternatives. However, the bus ramps can be developed independently.

The elevated Second Street bus route would be acceptable only if none of the automobile connections from I-280 to the Bay Bridge were to be made. Under these circumstances, the Second Street elevated bus route has certain economies when compared to the Colin P. Kelly Jr. Street bus route; however, the cost advantages may be offset by the adverse effects of an elevated structure over Second Street. If a Colin P. Kelly Jr. Street automobile connection to the Bay Bridge were to be made, the Colin P. Kelly exclusive bus route would be preferred because of the desirability of avoiding multiple elevated structures. The Sixth Street bus route would be appropriate only in conjunction with the Sixth Street automobile connection to the Bay Bridge, and then only to avoid the cost of building an additional, separate bus connection (at Second or Colin P. Kelly Streets). The Second Street surface route which would utilize the proposed ramps to grade at Second Street is, of course, the least expensive and easiest to implement, but even with transit preferential treatment cross-traffic conflict makes it the least desirable from an operational standpoint. Costs for the elevated routes are shown on Table 1 in Section IV of this report.

As a beginning step in the implementation of the use of I-280 as the regional transit connector, the California Department of Transportation has proposed to implement exclusive transit and car pool lanes on the already completed section of I-280 in the near future.

BUS SHUTTLE TRANSIT

A shuttle bus system would serve several demand destinations in South of Market as well as the north of Market Street core and the waterfront, including the Southern Pacific Terminal and Yerba Buena Center.

A. Southern Pacific

For several years, at least, Southern Pacific will continue to provide a major transit service to the Peninsula. The relocated station at Fourth and Townsend Streets is not significantly different from the Third Street station. It is still a poor terminus for the commuter because it is still far removed from where he or she wishes to be. A convenient, reliable movement system into the Financial District is needed and should be a part of the overall transit system in this corridor.

B. Yerba Buena Center

Access to events and uses in the Yerba Buena Center will become more critical the farther away those events and uses are from Market Street and Mission Street, the transit arterials. The deletion from the original YBC redevelopment plan of the "people mover" which was to have run from BART on Market Street to Folsom Street makes difficult the pedestrian access from the transit arterials to the farther parts of the center. Some of the distances will be too long to expect a commuter to walk, and probably too far to expect the special event patron or tourist (using the convention facilities) to walk. The bus shuttle system should be designed to meet these needs.

C. Parking Belt

The Transportation Element of the Master Plan delineates a "preferential parking belt" in the South of Market area. It is intended that automobiles be intercepted at a freeway terminus for parking and discouraged from entering the downtown core. Essential to the concept of intercepting automobiles at the "belt" is the institution of an effective transit shuttle system into and about the core area from this belt.

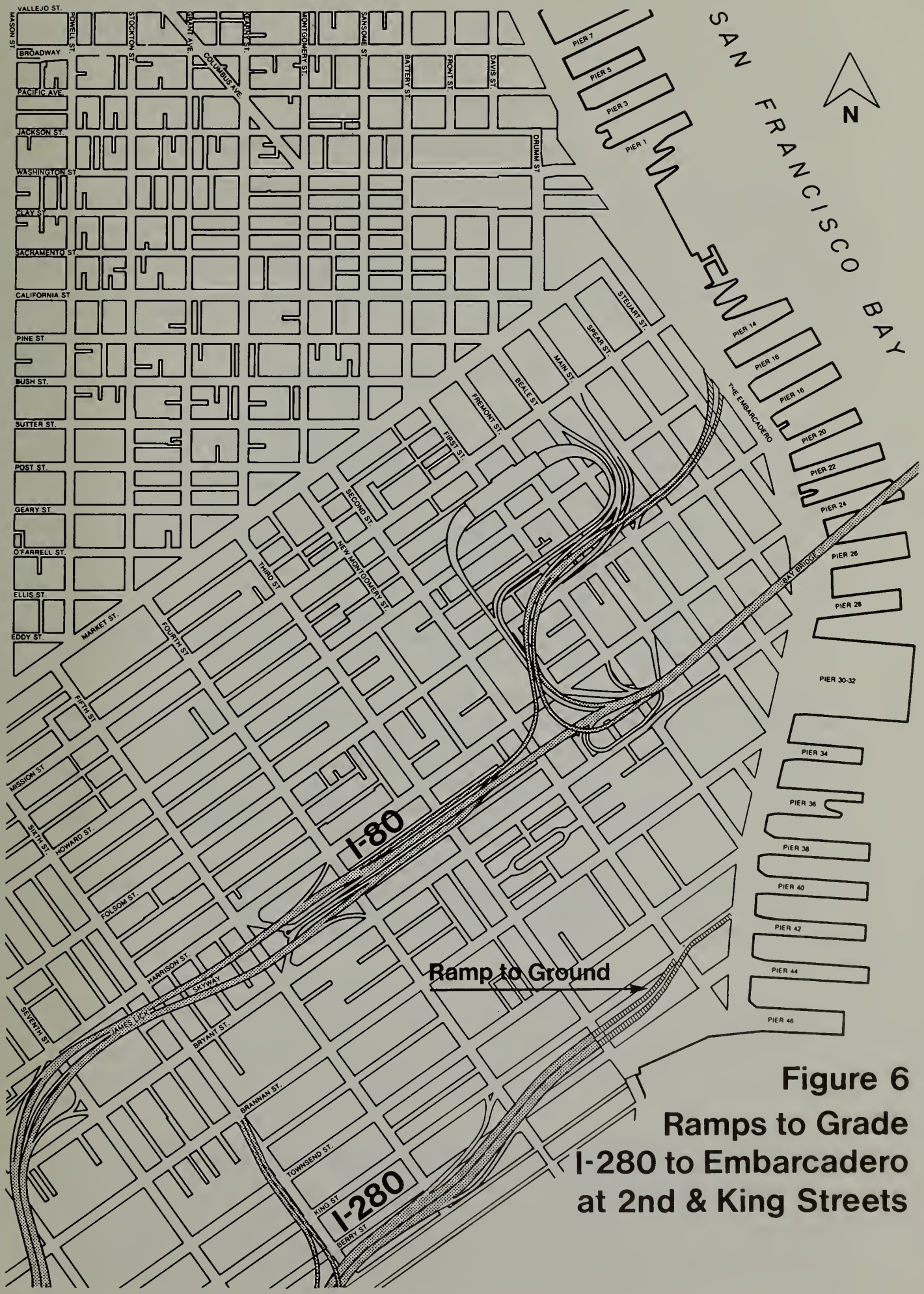

Figure 6
Ramps to Grade
I-280 to Embarcadero
at 2nd & King Streets

III. EMBARCADERO

A Plan for the Removal of the Embarcadero Freeway

As reaffirmed in the resolution calling for this study, it is the policy of the City and County of San Francisco to remove the elevated Embarcadero Freeway. The purpose of this study has been to find a non-freeway alternative that serves the functions of the existing elevated freeway in the transportation system. The first questions to be addressed, therefore, are how does the Embarcadero Freeway currently function and what are the conditions which might bear on the future of this function.

FUNCTION OF THE EMBARCADERO FREEWAY

Much of the past analysis of the Embarcadero Freeway has been tied to its relationship to the Golden Gate corridor between the Bay Bridge and the Golden Gate Bridge. However, since its inception the Embarcadero Freeway has functioned primarily as a distributor to San Francisco's downtown area, bringing San Francisco, East Bay and Peninsula travelers to the area north of Market Street. Over 60,000 vehicles use the Embarcadero Freeway daily; an additional number use the surface Embarcadero below. These autos are connecting predominantly to the James Lick Freeway and the Bay Bridge (Interstate Route 80), and The Embarcadero serves as a major on/off ramp to the Interstate freeway system. An alternative to the elevated freeway must fulfill the same traffic function while alleviating some of the adverse environmental effects of the elevated freeway.

While serving primarily as a downtown distributor, the Embarcadero Freeway was designed with the idea that it would be joined to a Golden Gate Freeway and carry most of the trips in that corridor. This study proposes no new solutions for the Golden Gate corridor; neither does it preclude any future decisions relative to the Golden Gate corridor. The study, thus, has been free from at least one assumption of previous studies, that is, that the Embarcadero Freeway must be "replaced" underground.

In accordance with the resolution authorizing this study, an analysis was made of how to provide for the existing level of traffic or, if possible, a reduction in private automobile traffic. The study review group noted several major points relevant to the amount of traffic through The Embarcadero.

On the one hand, there is no likelihood of a reduction in office space and jobs north of Market Street. Even with a shift in the growth pattern to South of Market, the north of Market office core is continuing to grow, and a satellite core is developing in the Northern Waterfront. And as the populations of East Bay and the Peninsula grow, so does the number of work trips to San Francisco.

On the other hand, transit incentives and automobile disincentives can be used to alter the pattern of work trips to the north of Market Street area. A fully operational BART system, including East Bay and West Bay feeder buses, still can be expected to have a major effect on East Bay commute patterns. Thus, the primary place where an innovative and substantial effort must now be made to bring about a major shift away from the private automobile to transit is in the Peninsula corridor. Since it is not likely

that there will be more freeways from the Peninsula in the foreseeable future, most growth in traffic originating in, or destined for, the Peninsula must be accommodated on transit. Reports on the San Mateo County Transit Development Project, the San Mateo Local Bus Study and Southern Pacific Upgrading Study were released in 1974, all recommending potential solutions. For its part, this study has proposed an exclusive transit link from I-280 to a regional bus terminal in San Francisco (see Section II) as one of several steps which should be taken to improve transit in this corridor. Even while seeking to place the Peninsula commuter in transit from point of origin to point of destination, this study has also recommended concurrent transit improvements in the Embarcadero area itself to further reduce private automobile traffic on The Embarcadero.

CHANGES IN CONDITIONS SINCE FREEWAY DESIGNED

In analyzing an alternative to the elevated Embarcadero Freeway, it is necessary to examine not only the factors of its current and anticipated function in the transportation system, but also the changes in the Embarcadero area which particularly justify an alternative now.

When the elevated Embarcadero Freeway was designed in 1953 it was to have been one segment of a multiple-freeway network in San Francisco. Not only was there to be a link to the Golden Gate Bridge, but there was also to be a Southern Crossing to Alameda and an additional -- third -- Peninsula freeway to the east of the Bayshore Freeway. These facilities and the travel patterns they would have encouraged were rejected by San Francisco and later by the region, most recently in MTC's Regional Transportation Plan.

The Embarcadero Freeway was designed as a route through a then primarily industrial area, and the decisions and changes which would cause the Embarcadero area to change dramatically as the downtown core of San Francisco grew toward the Bay were not taken into account. Although the north of Market ramp system was later shifted somewhat to accommodate the Golden Gateway Redevelopment Area, the Embarcadero Freeway itself became a rather incongruous eastern boundary to the area. Over time the presence and design of the Embarcadero Freeway became increasingly incongruous in light of the Embarcadero Center and massive private redevelopment.

The concept of a major public open space on The Embarcadero edge of the congested urban core became a reality when Justin Herman Plaza and Park was provided as part of the Golden Gateway Redevelopment Project. But the use and value of the Plaza are impaired by the fact that it must stand in the shadow of the freeway; construction of the second phase, the park portion, on the blocks north of the Plaza is imminent, despite the fact that the elevated Clay and Washington Street freeway ramps run right through the middle of it.

The Ferry Building-Embarcadero area has once again become a principal "gateway to San Francisco." With transbay BART service that gateway is open to the East Bay, and renewed Marin County ferry transit has begun to restore the Ferry Building area as a major gateway to the North Bay as well. The Port Commission has determined that piers north and south of the Ferry

Building are not needed in maritime use and major new development is likely to take place there in the foreseeable future.

The reasons for removing the elevated freeway have multiplied with the changes in the area and the transportation system since the freeway was designed and built. Given these changed circumstances, the elevated freeway is presently an impediment to the proper relationship between the City and the Bay, an aesthetic barrier, an environmental disruption and an obstable to optimum use of the waterfront.

Moreover, the existing elevated structure may stand in the way of attaining a more desirable alternative transportation system in this area of San Francisco by preventing adjustments to The Embarcadero right-of-way for better pedestrian connections and functionally separate Port traffic. And the North Beach and Telegraph Hill neighborhoods have protested the effects of traffic promulgated by the existing freeway ramps.

Environmental concerns, transit improvements and potentialities, pier development opportunities and increased recreational use of the Northern Waterfront all argue for removal of the existing elevated freeway.

FEASIBILITY OF AN ALTERNATIVE

It is physically possible to demolish the Embarcadero Freeway and to accommodate its traffic function on an alternative roadway. There appears to be no more desirable place for the City to route the traffic carried by the existing freeway than in The Embarcadero right-of-way, where there is no cross-interference with the major Market Street and Mission Street transit routes. The members of the study review group agree that if the Embarcadero Freeway is torn down, the traffic can be accommodated as part of a general four-lane (two lanes in each direction) roadway along The Embarcadero with provision for an extra lane in each direction, functioning as on and off ramps, and limited access between the approach to the Bay Bridge at Howard Street and Clay/Washington Streets. Traffic could be subjected to some increased congestion during part of the peak periods; however, it is possible to ameliorate congestion problems through design details.

PROPOSED REPLACEMENT FACILITY

The elevated Embarcadero Freeway would be removed from Beale Street to its present terminus at Broadway. The Embarcadero exit from I-80 would be brought down from east of the Main Street ramp to grade at Howard Street and The Embarcadero. The proposed alternative facility would be primarily a surface roadway. It would consist of four lanes (two lanes in each direction) for most of its length with auxiliary stacking lanes at signalized intersections. There would be six lanes (three lanes in each direction) between Howard Street and Washington Street.

This roadway would be depressed under the end of Market Street, with depressed on and off ramps to Clay and Washington Streets.

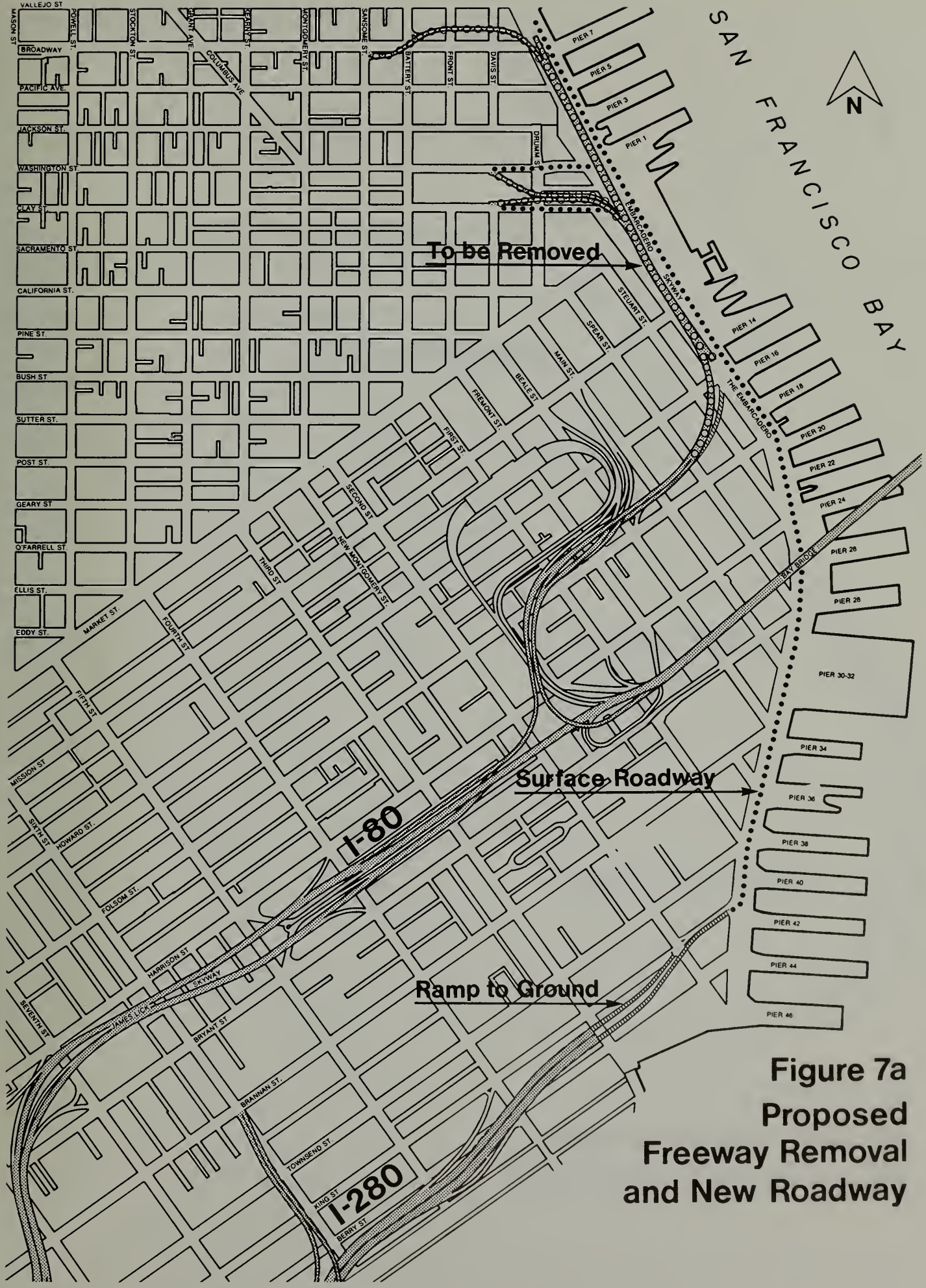

Figure 7a
Proposed Freeway Removal and New Roadway

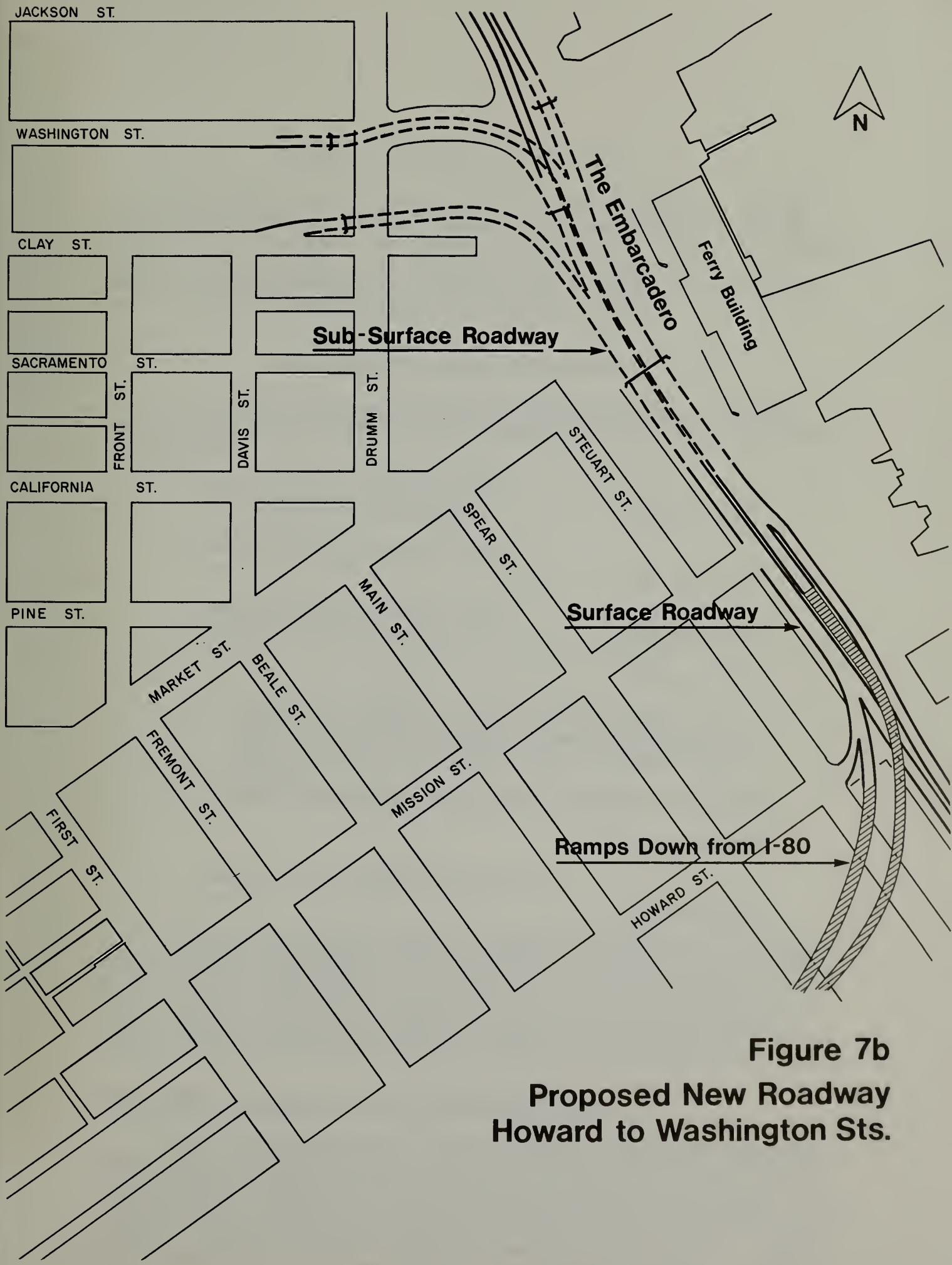

Figure 7b
Proposed New Roadway
Howard to Washington Sts.

COST OF DEMOLITION AND REPLACEMENT

The cost to demolish the existing elevated Embarcadero Freeway is estimated by the California Department of Transportation to be $10-11 million in 1974 dollars. The cost to reconstruct the roadway from Howard to Washington is estimated to be $14-17.3 million, depending upon the length of undergrounding of the Clay/Washington ramps, making the total cost of demolition and reconstruction $24-28.3 million.

DEMOLITION AND RECONSTRUCTION SCHEDULE

A demolition and reconstruction schedule, designed to maintain service on at least portions of the roadway during all phases of the work is as follows:

1. Remove existing structure from Clay/Washington to Broadway	155 work days
2. Remove existing structure from Beale to Mission	135 work days
3. Remove existing structure from Mission to Clay/Washington	100 work days
	390 work days

During this 390-day period the ramping down of The Embarcadero exit from east of the Main Street exit to the surface at Howard and The Embarcadero could be done.

4. Construct the southbound depressed portion of the roadway	350 work days
5. Construct the northbound depressed portion	550 work days

Taking into account weekends, holidays and periods of no construction during the rainy season, the time frame for demolition and reconstruction may be conservatively estimated to be as much as 5-1/2 to 6-1/2 years. There is expected to be major peak hour traffic congestion problems during much of the construction period, but at least two lanes in each direction would be maintained in service throughout that period.

OTHER SYSTEM COMPONENTS RELATED TO THE EMBARCADERO

The existing Embarcadero surface roadway is a four-lane undivided street used by considerable truck traffic serving the piers, in addition to considerable volumes of peak hour and off-peak hour automobile traffic, with occasional movements of freight trains of the Belt Line Railway. The existing right-of-way of the surface Embarcadero can be improved to provide more coherently for its several current and proposed uses. Improvements would include the four-lane landscaped divided roadway; sidewalk;

an exclusive bikeway; provision for the railroad tracks in an alignment exclusive of auto traffic, where possible; a new transit route, and pier loading-apron areas.

ROADWAY

A four-lane (two in each direction) landscaped surface roadway is proposed south of Howard Street and north of Washington Street tying into the previously mentioned wider segment between Howard and Washington Streets. Different types of trips are expected to occur along different segments of the roadway. The segment from the I-280 ramps at King Street to Howard Street is intended to be the replacement for the elevated I-280/ elevated Embarcadero Freeway connection, while the northern segment of the roadway may become increasingly a recreational route. The four-lane roadway can be extremely flexible, with the amount and nature of traffic determining the number of cross streets intersecting with the roadway and the timing of traffic signals.

SIDEWALK AND BIKEWAY

Sidewalks and an exclusive bikeway, protected by a curb barrier, can be designed to run the entire length of the roadway. The sidewalks and bikeway can be on either side of the roadway depending on the pattern of waterfront use and development. (Such bikeways are eligible for federal funding on all federal and federal-aid roads.) The cost of constructing the roadway, including landscaping, sidewalk and bikeway is estimated by the San Francisco Department of Public Works to be approximately $5.5 million in 1974 dollars for the portion from King Street to Howard Street and $1.0 million for the portion from Washington Street to Broadway. Costs for extensions of the roadway north or south can be estimated from these figures.

RAIL ACCESS TO PIERS

Maintenance of main line Belt Line track and certain pier spur tracks is essential to continued maritime use of the waterfront. Rail access is required for all piers currently in maritime service, both for those which will remain in maritime service (Piers 26, 28, 30, 32, 34 to 46A) and temporarily for those which over time will be developed with commercial and open space uses. A single track is required between Pier 24 and Broadway (Pier 7); two tracks are required south of Pier 24.

TRANSIT

To encourage a reduction in the use of the private automobile in the Embarcadero area, an Embarcadero transit system can be developed. The Embarcadero area has never enjoyed a good "through" transit service throughout the length of its potential service area. It is currently

served by fragments of four Muni trolley and motor coach lines, but not by a single unifying type of transit service. Use of the Belt Line tracks for transit service has been proposed; other solutions may be possible.

In order to be successful, such a transit line must serve a variety of travel needs. That is, it must accommodate not only the commuter and the tourist looking for novel experiences but also the shopper bound for Fisherman's Wharf, the Muni patron transferring between bus lines, and the user of an expanding waterfront commercial activity.

From a terminal on King Street at Fourth, just across from the new Southern Pacific depot, the route would extend eastward parallel to King Street and then via the Embarcadero and Jefferson and/or Beach Streets to Fisherman's Wharf. Extension of the route beyond Fisherman's Wharf could be keyed to the development of the Golden Gate National Recreation Area transportation system. This Embarcadero route would link the transit to peripheral parking in the South of Market area and the existing parking in Golden Gateway/Embarcadero Center and might reduce to some extent the need for additional parking facilities in the Northern Waterfront.

Connection of the Embarcadero transit system to other transit lines and services should be an important consideration. The route described would be linked directly to the Southern Pacific commuter service, the Third and Fourth Street Muni lines, all of the lower Mission and Market Street Muni lines, the three cable car lines, and to the Muni's 47, 22, 43 and 28 lines. It would also provide connections to the Harbor Tours and Golden Gate Ferry services. A connection to the BART and Muni Metro subway rail systems, perhaps via a moving ramp from the Ferry Building area to the Embarcadero Station at Davis Street would also be significant to the success of the service.

PIER LOADING APRONS

In order to provide for the maritime uses of the Embarcadero, it is proposed that the automobile roadway be along the inland edge of the Embarcadero right-of-way, leaving apron working and loading areas in front of each pier.

Piers 34 to 46A are presently in maritime use. Pier 36 and Pier 38 are ship repair facilities and most of the remaining piers are used for maritime warehousing. Truck access is required. The area is subject to major long-term rebuilding. One of the plans calls for this area to be a two-berth container facility which would require considerable truck traffic.

Piers 26, 28, 30, 32 and Piers 9 through 35 also will remain in maritime service. They require continuous truck access for trucks approaching from north or south. At least two truck lanes are needed as well as longshoremen parking.

Other piers are proposed to be developed for non-maritime uses at some future time. Until then they will require truck access and loading space. As these piers are converted to other uses, the apron areas can be converted to additional public open space on the water's edge.

EFFECTS OF DEMOLITION AND RECONSTRUCTION

The following benefits should be realized by removal of the elevated Embarcadero Freeway and reconstruction of the surface roadway as proposed:

1. The relationship will be restored between downtown, Market Street and the Ferry Building, between the City and the Bay.

2. Interference with public access, aesthetics, and other factors of waterfront planning and use will be reduced.

3. Pedestrian access to and from the major downtown Market Street spine, The Embarcadero transit and regional ferry transit, and Justin Herman Park will be facilitated.

4. There will be functionally separate provision for Port traffic on the surface roadway, for trucks and railroad cars and their loading and unloading.

5. Some through traffic which now uses the Broadway ramp and goes through residential and commercial districts in North Beach, on parts of Telegraph Hill and on Broadway will be diverted to a preferable route using Clay/Washington and Sansome/Battery Streets as well as The Embarcadero itself.

6. Some traffic which now uses congested downtown streets on its way to the existing ramp system will be able to enter the limited access approach to the Bay Bridge and James Lick Freeway from the surface Embarcadero itself.

7. Noise caused by the reverberation effect of a double-decked elevated freeway, would be reduced in Justin Herman Park and in nearby buildings.

8. According to economic consultants to the BCDC Waterfront Advisory Committee, Port revenues derived from development of the piers north and south of the Ferry Building will be significantly enhanced.

9. The land under the Broadway ramp for several blocks can be returned permanently to private development and the tax rolls.

10. Access will be facilitated to planned waterfront recreational and open space and facilities.

11. The bicycle may be safely used as a means of transportation and recreation in this area by provision for an exclusive bikeway along The Embarcadero.

12. Removal of the elevated Clay/Washington ramps will eliminate a barrier through Justin Herman Park, making the whole park more usable.

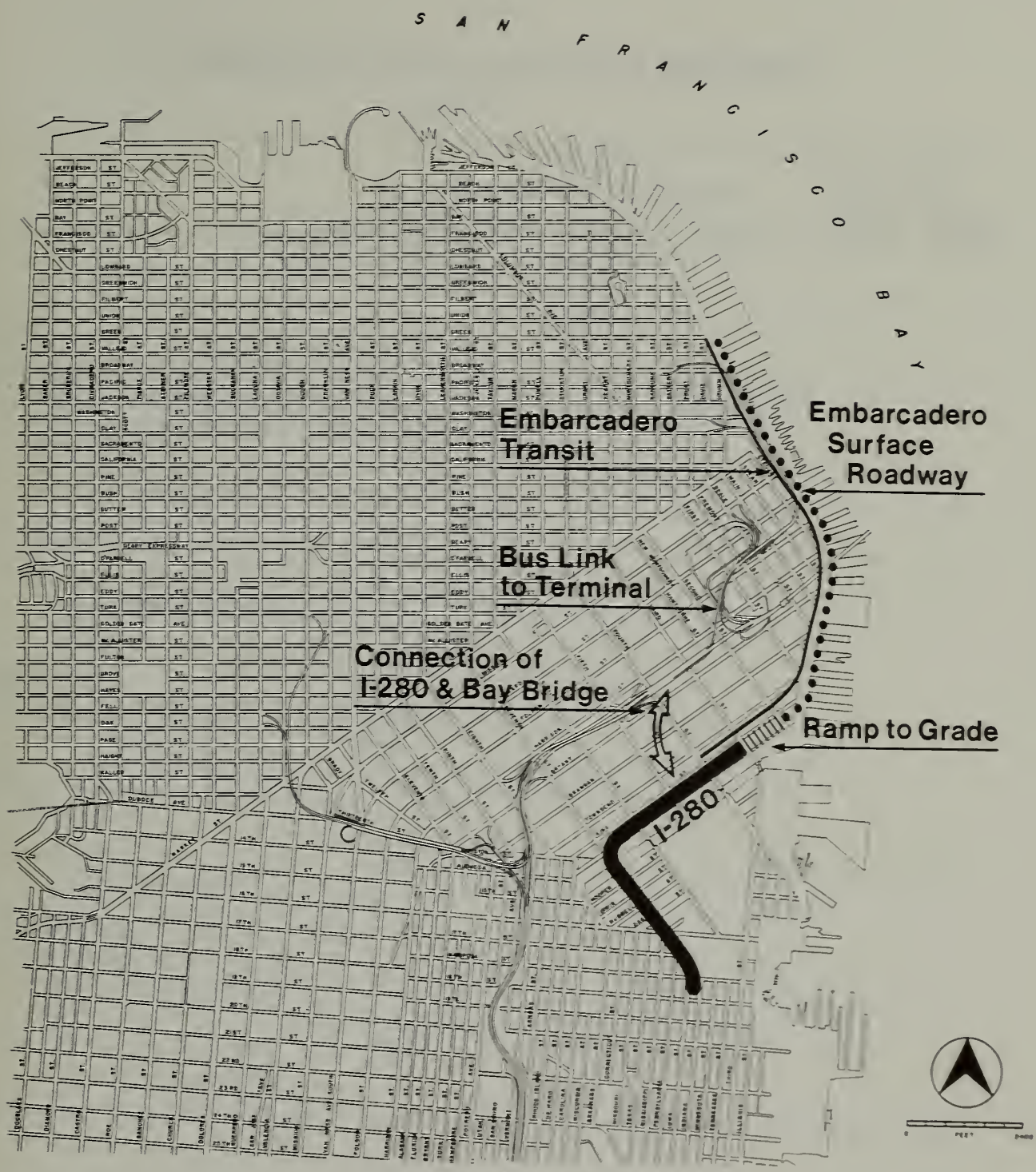

Figure 8

Proposed Embarcadero Area Transportation System

IV. TABULATION OF COSTS AND RIGHT-OF-WAY REQUIREMENTS

TABLE I

	Cost[1] (in millions of dollars)				Right-of-Way Affected	
	Construction	Right of Way		Total	Businesses[2]	Dwell Units[2]
			Previously Acq'd.			
I-280						
Waterfront Route	45.7	1.6	(9.0)	47.3(56.3)	19	--
I-80 Connection	35.8	1.5	(8.0)	37.3(45.3)		
Embarcadero Freeway Connection	9.9	.1	(1.0)	10.0(11.0)		
6th St. Alternative	20.9	6.5	(2.3)	27.4(29.7)	53	10
Colin P. Kelly Alt.	16.0	5.8	(2.3)	21.8(24.1)	24	--
Ramps to Surface Embarcadero at King/Second	2.0	0.2	(2.3)	2.2 (4.5)	--	--
Embarcadero						
Embarcadero Howard/Washington	24.0-28.3[3]	.1		24.1-28.4	1	--
Embarcadero King/Howard	5.5	--		5.5[4]	--	--
Embarcadero Washington/Broadway	1.0	--		1.0[4]	--	--
Other Transit						
Colin P. Kelly Bus Route as part of 280/80 Connection	7.7	.9		8.6	1	
Colin P. Kelly Bus Alt. w/o 280/80 Connection	7.8	5.9		13.7	18	--
Sixth St. Bus Rte. as part of 280/80 Connection	6.0	3.6		9.6	16	8
2nd St. Bus Alt. w/o 280/80 Connection	7.4	2.5		9.9	8	--
Embarcadero Transit	Not Determined	--		Not Determined	--	--
Bus Shuttles	Not Determined	--		Not Determined	--	--

[1]Cost estimates were developed in 1974 by CalTrans except where noted.
[2]Includes only those structures remaining as of September 1, 1974.
[3]Includes demolition.
[4]San Francisco Department of Public Works estimates.

TABLE II

A COST COMPARISON BETWEEN PREVIOUSLY COMMITTED PROJECTS AND THE PROPOSED TRANSPORTATION SYSTEM

(In millions of dollars)

I. Presently committed waterfront route connection to Bay Bridge and Embarcadero Freeway	($37.3 - $45.3) ($10.0 - $11.0)	
		$47.3 - $56.3
II. Proposed Transportation System		
Selected Components		
A. Colin P. Kelly Alternative	($21.8 - $24.1)	
B. Embarcadero Freeway Demolition; Roadway Construction from Howard to Washington Streets	($24.1 - $28.4)	
		$45.9 - $52.5
C. Embarcadero Roadway from Washington-Broadway	($1.0)	
		$46.9 - $53.5
D. Embarcadero Roadway from King-Howard	($5.5)	
		$52.4 - $59.0

V. FINANCING

INTRODUCTION

The Board of Supervisors resolution establishing this study called for evaluation of financial considerations and for a financial plan for demolition of the Embarcadero Freeway. This section contains suggestions regarding possible funding sources for carrying out the actions described in this report. It should be noted, however, that the members of the study review group do not all agree that the funds should be spent in the manner indicated.

FUNDS SAVED THROUGH ALTERNATIVES TO I-280 WATERFRONT ROUTE

The major components of the transportation system proposed in this report (an alternative connection between I-280 and the Bay Bridge plus demolition of the Embarcadero Freeway and reconstruction of the surface Embarcadero) can cost less than the amount of money already committed by the Federal and State governments to this area of San Francisco (see Table II in Section IV).

It can be argued that the integrated transportation system described in this report, especially the costs of demolition of the Embarcadero Freeway, should be financed with the monies saved by: 1) abandoning that segment of Interstate Route 280, which was to have connected to the Embarcadero Freeway; and 2) building one of the less expensive alternative connections between I-280 and the Bay Bridge rather than the more expensive committed waterfront connection. Indeed, the circumstances which led to this study indicated that State and Federal funds might be used to replace the Embarcadero Freeway with an alternative transportation system. There may be procedures which could provide for such a financial arrangement under amendments contained in the Federal Highways Act of 1973. However, use of the funds for this purpose will require a decision by the Department of Transportation in Washington.

In addition to those portions of the proposed transportation system which might be financed from monies saved through alternative and abandoned Interstate Highway segments, some system components might be eligible for funds from other sources. Indeed, the California Department of Transportation has suggested the use of Federal Aid Urban (FAU) system funds. San Francisco is due to receive $75-100 million in FAU funds over the next 20 years for street and transit capital improvements. The components of the proposed system are discussed below in relationship to possible financing.

280/80 CONNECTION

The connection of Interstate 280 with Interstate 80 is the primary commitment of the Federal government because of the importance placed on continuity of the Interstate System. The District Federal Highway Administrator has advised that adoption of either alternative connection alignment (Sixth Street or Colin P. Kelly, Jr., Street) will comply with the objective

of connecting these two Interstate routes and will be eligible for funding as part of the Federal-Aid-Interstate System. Some adjustment of system designation may be necessary depending on the details of the alternative selected.

280/EMBARCADERO CONNECTION

The surface roadway along The Embarcadero from King Street to Howard Street, can realize the objective of the abandoned segment of freeway. Therefore, it too might be paid for, at least in part, with Federal-Aid-Interstate or Federal-Aid-Primary System monies. This segment of roadway also might be added to the State Highway System in order to qualify for some funds.

EMBARCADERO

As stated in this report, replacement of the elevated Embarcadero Freeway is feasible. Demolition of the elevated freeway structure can be viewed as a necessary part of the proposed reconstruction and, therefore, eligible also for Federal funds as part of the normal costs of such a construction project.

The limited access surface and subsurface roadway proposed between Clay/Washington and Interstate 80 (Bay Bridge-James Lick) will continue to be the northernmost on-and-off ramp to I-80. This ramp is a significant element in the functioning of that Interstate route. Thus, it can be argued that rebuilding the roadway is eligible for funding out of Federal-Aid-Interstate System funds. In addition, it could be financed out of Federal-Aid-Primary System funds. In order to qualify for these funds, some adjustment of the system and route description would be required. Use of Interstate or Primary System funds in this manner will require a decision by the Department of Transportation at the Washington level.

The surface roadway from the Bay Bridge north (to Bay Street) is part of the State Freeways and Expressways System. Retaining the roadway in that system will allow the greatest flexibility in the use of State Highway funds for at least part of the proposed improvements.

TRANSIT IMPROVEMENTS

The District Federal Highway Administrator has advised that an exclusive bus ramp to the regional bus terminal can be paid for with Federal-Aid-Interstate System funds as part of the connection between I-280 and I-80.

Embarcadero transit might be eligible for funding in part from Federal-Aid-Interstate funds, especially for the portion from King to Howard Streets where it would act as a partial replacement segment for the abandoned freeway segment connection between I-280 and the Embarcadero Freeway. It may also qualify for Urban Mass Transportation Authority special grants, especially insofar as it relates to other elements of the

Muni system which are UMTA financed. Establishment of the exclusive right-of-way might be done as part of the roadway improvements with State Highway funds.

Expanded Muni shuttle service from Southern Pacific Station and parking would serve a large number of persons from other parts of the region outside San Francisco. A share of the operating costs, therefore, may be eligible for reclamation from Transit Development Act funds allocated to each county in the region by the Metropolitan Transportation Commission.

APPENDIX A

SAN FRANCISCO BOARD OF SUPERVISORS
RESOLUTION NO. 828-73
Adopted December 10, 1973

CALLING FOR DEMOLITION OF THE EMBARCADERO FREEWAY; OPPOSING THE EXTENSION OF INTERSTATE ROUTE 280 BEYOND THIRD STREET ALONG THE WATERFRONT; URGING WITHDRAWAL OF THE 480 CONNECTION FROM THE STATE HIGHWAY PLAN; AND CALLING FOR A SHORT TERM STUDY OF NON-FREEWAY ALTERNATIVES TO BOTH THE EMBARCADERO FREEWAY AND THE I-280 EXTENSION; RESCINDING RESOLUTION NOS. 475-65, 506-66, 653-68, 761-69 AND 673-70.

WHEREAS, Resolution No. 475-65, adopted by this Board of Supervisors on July 26, 1965, declared the official policy of the City and County of San Francisco as supportive of a plan for a subsurface Golden Gate Freeway within the northeastern sector of San Francisco and a concurrent phasing-out of the elevated Embarcadero Freeway; and

WHEREAS, Resolution No. 506-66, adopted July 18, 1966, approved the routing of Interstate Highway 280 between Brannan Street and the existing freeway near Howard Street known locally as Southern-Embarcadero Freeway Extension; and

WHEREAS, Resolution No. 653-68, adopted September 30, 1968, reaffirmed this Board's policy in favor of phasing-out the elevated Embarcadero Freeway, and called upon the California Highway Commission to consider conversion of the elevated Embarcadero Freeway to a subsurface freeway; and

WHEREAS, Resolution No. 761-69, adopted on October 27, 1969, requested the State Division of Highways to stop work on the freeway connection between the Embarcadero Freeway and the Southern Embarcadero Freeway Extension, and to work with City and County of San Francisco departments toward undergrounding of the Embarcadero Freeway; and

WHEREAS, Resolution No. 673-70, adopted on November 9, 1970, adopted objectives, policies and design criteria proposed by the Director of Planning in furtherance of this Board's policy that any Golden Gate Freeway must be a subsurface facility, that the existing elevated Embarcadero Freeway north of Howard Street be undergrounded, that work be stopped on the freeway section connecting the existing Embarcadero Freeway to the Southern Embarcadero Freeway Extension, and that City departments work with the State Division of Highways toward the eventual undergrounding of the Embarcadero Freeway; and

WHEREAS, The San Francisco Waterfront Advisory Committee of the Bay Conservation Development Commission on August 20, 1973, adopted a resolution relative to its duty of recommending a "special area plan" for the San Francisco waterfront, which declared variously that the existence of the Embarcadero Freeway and the possible extension of Route 280 to the Bay Bridge will interfere substantially with public access, aesthetics, and other factors of waterfront planning and use; that the proposed 480 connection between the Bay and Golden Gate Bridges be deleted from the State Highway Plan; that the State Director of the Department of Transportation has indicated that the State will consider demolition of the Embarcadero Freeway providing that acceptable alternatives including non-structural alternatives can be found; and that State and Federal highway funds may be available for demolition of the Embarcadero Freeway; and

WHEREAS, the Federal Highway Administration recently announced that it could contribute 70% of the cost of replacing the Embarcadero Freeway with some other transportation system and the State Department of Transportation has indicated the possibility of funding thereby providing for the first time, a realistic financial opportunity to remove the Embarcadero Freeway; now, therefore be it

RESOLVED, that the Board of Supervisors of the City and County of San Francisco does hereby rescind the resolutions cited above and declare the official policy of said City and County to be as follows:

(1) Thatthe Embarcadero Freeway shall be demolished and that City Departments are hereby authorized and directed to work with State and Federal Highway Departments to develop a physical and financial plan for demolition to be presented to the Board of Supervisors within nine (9) months for approval.

(2) That the proposed extension of Interstate Route 280 beyond Third Street along the San Francisco waterfront be and it is hereby strongly opposed, and all concerned agencies are urged to suspend immediately all planning, acquisition and construction for said extension pending completion of a short-term study and evaluation of alternatives as hereinafter recommended;

(3) That the Department of City Planning with consultation from the Department of Public Works, Federal Highway Administration, State Department of Transportation, and the Metropolitan Transportation Commission as well as other official agencies which may be involved, undertake and complete a short-

term study and evaluation of alternatives to both the Embarcadero Freeway and the extension of Interstate Route 280 beyond Third Street, including financial considerations, transmitting their findings and recommendations to this Board of Supervisors not later than nine months subsequent to the date of adoption of this resolution.

(4) That said short-term study comprise non-freeway alternatives to the Embarcadero Freeway and the I-280 waterfront extension which will not increase automobile traffic but which will be limited to innovative use of surface streets, public transit, peripheral parking, and any other means to accommodate the existing level of traffic and wherever possible reduce private automobile traffic, an important thrust of said study being an attempt to secure Federal and State funds for which any proposed alternatives may qualify;

(5) That the proposed 480 connection between the Golden Gate Bridge and/or the Bay Bridge and downtown San Francisco be deleted from the State Highway Plan and be it

FURTHER RESOLVED, That copies of this resolution be transmitted immediately to the Mayor, the Chief Administrative Officer, the City Planning Department, the Director of Planning, and the Director of Public Works for immediate attention and implementation to the end that the City and County may proceed without any delay to commence and complete the study and planning activities which will result in this Board of Supervisors having before it considered alternatives to the Embarcadero Freeway and the I-280 waterfront extension for legislative consideration and action; and be it

FURTHER RESOLVED, the copies of the resolution be transmitted to the Bay Conservation & Development Commission, Federal Highway Administration, the State Department of Transportation, and Metropolitan Transportation Commission.

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(5) That the proposed 480 connection between the Golden Gate Bridge and/or the Bay Bridge and downtown San Francisco be deleted from the State Highway Plan and be it

FURTHER RESOLVED, That copies of this resolution be transmitted immediately to the Mayor, the Chief Administrative Officer, the City Planning Department, the Director of Planning, and the Director of Public Works for immediate attention and implementation to the end that the City and County may proceed without any delay to commence and complete the study and planning activities which will result in this Board of Supervisors having before it considered alternatives to the Embarcadero Freeway and the I-280 waterfront extension for legislative consideration and action; and be it

FURTHER RESOLVED, the copies of the resolution be transmitted to the Bay Conservation & Development Commission, Federal Highway Administration, the State Department of Transportation, and Metropolitan Transportation Commission.

SAN FRANCISCO DEPARTMENT OF CITY PLANNING

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Edward I. Murphy, Assistant Director
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